TV Renewal – questions/additional information requests and responses, outstanding information
Resolute 2440-0005

#	Date Sent	Question/Comment	Due Date, response rec'd date	Response /Comments (i.e. adequate, more questions, etc.)
01	2/12/13	Emission data can be found in the Form D section of the application. Looking at the Woodyard emission date (pg 29 of 174) I do not see any emission factors listed. I reviewed the associated notes and do not understand Note A; which says that the calculations are in the TV application(?). Please provide the emission factors for the woodyard area and explain Notes A and B.	2/19/13 3/4/13	• Supplemental document (Att. 6) sent • Requested VOC emissions – Feb20 • Rec'd VOCs in Att. 6a – Mar 1 COMPLETE
11	3/7/13	1) 6.2 - Road Activities - the AP-42 factors for emissions from roads (paved and unpaved) have been updated. Road emission factors can be Chapter 13 of AP-42. The Roads calculation sheet in Section D of the application says that Ch. 13 was used. Please provide updated calculations using the latest version of AP42.	3/25/13	• Rec'd revised road emission calcs on March 25. COMPLETE
All	02/10/14	Reviewing the calculation page for the Digester System (pg 7 of 174) and noticed the NCASI reference as TB 858. Many other pulp and paper sources have updated their emission factors for all sources by using the latest TB 973. Is this something you will do?	03/03/14	Response email rec'd 3/3/14. Hard copy rec'd 3/4/14.
TV app, Sect. D	02/10/14	Section D of the TV renewal application: 1) A calculation sheet for ID 10 Methanol Tank could not be located within this section. Please provide the emission estimates for ID 10 Methanol Tank. 2) Several calculation sheets for some tanks were marked as "Insignificant Activities". However, the uncontrolled emissions are greater than 5 ton VOC/yr, and as such, these tanks are not insignificant and should be placed within the Emission Unit to which they belong. These sheets are identified as: Weak Black Liquor Tanks (pg 157 of 174); Strong black Liquor Tanks (pg 159 of 174); White Liquor Tanks (pg 161 of 174); High Density Pulp Tanks (pg 165 of 174); Low Density Pulp Tanks (pg 167 of 174). Also, Green Liquor Tanks (pg 163 of 174) was included with Emission Unit ID 07 Chemical Recovery. For the tanks mentioned above, please provide the Emission Unit ID to which it belongs, the number of tanks and capacity (in gallons) of each tank. As noted in March 3, 2014 submittal/response, the VOC emissions from each weak black liquor tank, each strong black liquor tank, each white liquor tank, and each low density pulp storage tank are below	03/03/14 EM: 11/21/14 No hard copy	Response email rec'd 3/3/14. Hard copy rec'd 3/4/14. - 4/24/14 – Discussed action on tanks in IA list. Steve to review and provide list of where tanks need to be moved if necessary. - 5/7/14 – rec'd EC of list of IA and where to move for inclusion in EUs.

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		the 5 tpy insignificant threshold. These tanks remain in the insignificant activity calculation roll-up. The calculations for the green liquor tanks have been moved to emission unit 07. The calculations for the high density pulp storage tanks have been moved to a new emission unit 12.		
ID 02	02/10/14	Digester Relief Gas emission calculation page (pg 9 of 174) – 1) Upon reviewing this emission calc page and the referenced NCASI TB, not all of the pollutants presented in Table 9A of NCASI TB 858 are present on the emission calculation page, such as dimethyl disulfide, methyl mercaptan, etc. Please include all pollutants that are presented in the NCASI tables in the calculation sheets. If you believe that a pollutant in the NCASI TB is not emitted from your source then provide a detailed justification why that pollutant is not emitted from the source. 2) VOC as VOC – a conversion is used to go from VOC as C to VOC as VOC. BAQ prefers that the conversion based on molecular weight not be used because it is not a good approximation of Total VOCs. There is no easy conversion from VOC as C to VOC as VOC. It would be better to sum all pollutants presented in the TB for each source that are VOCs. Please do this for all sources at the facility where the NCASI TBs are used. Digester Blow Tank (pg 11 of 174) – 3) Pollutants that are noted as being "non-detect" in the NCASI TB have been included in the calc sheet. "Non-detects" are considered "0" and should not be accounted for in the calc sheet. I believe this is EPA's current approach. 4) Primary Knotters – at the inspection last year, Paul Edinger of the Lancaster District office noted there are 2 each of the primary knotters and secondary knotters. The PFD in Tab 3 of the application shows a "(2)" in the box for each of these. Is it correct that there are two each of these? If so, I will denote this in the	03/03/14	• Response email rec'd 3/3/14. Hard copy rec'd 3/4/14. COMPLETE

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		equipment listing in the TV permit.		
ID 05	02/10/14	The equipment listing for the TMP process lists "Liquid Phase Separators (1,5204 gallons each)". The gallon size does not make sense. How many separators are there and what are the sizes?	03/03/14	Response email rec'd 3/3/14. Hard copy rec'd 3/4/14. COMPLETE
ID 07	2/11/14	Page 11 of 15 of Form C lists the control device ID for the No. 2 Lime Kiln as 2723S2. But the control device table in Form C lists the Lime Kiln ESP ID as 2723C. Which is correct?	03/03/14	Response email rec'd 3/3/14. Hard copy rec'd 3/4/14. COMPLETE
ID 08	2/11/14	Form C – pg 12 of 15 lists the control device ID for the Power Boiler as 2550C. However, this Control Device ID does not appear in the Control Device Table in Form C. Is 2550C a typo or was 2550C left off out of the control device table? Please correct.	03/03/14	Response email rec'd 3/3/14. Hard copy rec'd 3/4/14. COMPLETE
ID 10	2/11/14	Please provide more information on the Methanol Tank. 45,686 gallons is greater than the 151 m3 specified in the regulation. What is the true vapor pressure of MeOH? Sources greater than 151 m3 with a true vapor pressure ranging from 5.2 kPa to 76.6 kPa (which I believe MeOH is within this range) should be equipped with one of the following: 1) fixed roof with internal floating roof; 2) external floating roof; 3) closed vent system and control device; or 4) an equivalent system to 1), 2), or 3). Which of these is the MeOH tank equipped with?	03/03/14	Response email rec'd 3/3/14. Hard copy rec'd 3/4/14. COMPLETE

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c/p-CH	3/7/14	Construction permit – CH issued July 29, 1992 was for the conversion of the No. 3 Recovery Boiler ESP East chamber from a wet to dry bottom. Was this work completed? If so, should the modification date of 1992 show up for this ESP in the equipment listing?	3/21/14; EM.3/21/14 HC.3/24/14
c/p-CU	3/7/14	Construction permit –CU issued April 8, 2002 was for the installation of 5 diesel powered pumps at the wastewater treatment plant. - Should the Aearated Stabilization Basin and Tertiary Treatment Plant be noted as having two pumps each? - The size stated in the c/p for the No. 1 Holding Basin Pump No. 2 is 345 hp. The permit app says 325 hp. Which is correct?	3/21/14; EM.3/21/14 HC.3/24/14
c/p-CV	3/7/14	Construction permit –CV issued June 10, 2002 was for the installation of a diesel powered pump at the wastewater treatment plant. No. 1 Holding Basin Pump No. 1 was specified in the permit. The pump size specified in the permit was 325 hp. The TV app says 345 hp. Which is correct? Was this transposed with the No. 2 Pump (as seen in c/p-CU)?	3/21/14; EM.3/21/14 HC.3/24/14
ID 11	3/7/14	Emission Unit ID 11 contains two sources – "Equipment Leaks & Cleaning Material Usage" and "Miscellaneous Material Usage". What sort of equipment comprises each of these? What are the emission estimates for each? Do these need to be part of this permitted source? Can these two sources be moved to the Insignificant Activities list (Attachment B)?	3/21/14; EM.3/21/14 HC.3/24/14
ID 02	3/7/14	Calculations for: - Oxygen Delig., Knotters, – o VOC as C emission factor, Footnote "F" says this is the sum of the TRS pollutants. When totaling these pollutants (cells D293-D296) from the emission calculation spreadsheet I get 9.3E-3. How where does 2.0E-1 come from? - Knotters – the factor used for methyl mercaptan does not match that in NCASI TB 858, Table 4 (2.1E-5). From where did this emission factor come (1.3E-3)? - Screens – o Formaldehyde is present in the the TB 858 but was not included in your emission calculation sheet. Please add. - Sulfur Dioxide – please explain the calculations for this. I understand the conversion equation from TRS to SO_2. You use a control efficiency of 32.5% - why? There doesn't appear to be a control device on ID 02 for SO_2 emissions. Why is the TRS being converted? - Sample calculation – Is there a sample calculation in the TV renewal application or emission calculation spreadsheet for converting from "as C" basis to the predominant VOC. Was the "predominant VOC" denoted somehow in the various calculation sheets? If not, is "predominant" referring to the pollutant that is a VOC and has the highest emission from the particular source? For instance, would Terpenes be the predominant from the Digester Chip Bin? - Methyl Ethyl Ketone (MEK) has been delisted from being a HAP.	3/21/14; EM.3/21/14 HC.3/24/14

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		It shows up as a HAP on your calculation sheets. Is it being added in with the Total HAPs? Please correct.	
ID 05	3/7/14	Emission Factors from NCASI TB738: - Methylene chloride appears in Table 5-26 for the emission factors for the TMP process. However, no factor was used on your calculation sheet. Please add this factor and calculations to your sheet or provide an explanation why it should not be used. - Should the pollutants from Table 5-27 be added to the calculations? - VOC as carbon emission factor – the original factor is 5.98E-02 kg/MTP. What does MTP stand for? Just want to make sure I understand the conversion to lb/ADTP	3/21/14; EM.3/21/14 HC.3/24/14
TV App - Form K	3/10/14	1) Pg 2 of 17, third Line (Subparts F-R; T-LL…) The Citation column for this row ends "EEEEE-" Is there anything that follows the EEEEE? It looks like there should be with it ending with a hyphen. 2) Page 2 of 17 - There are several rules for NESHAP part 63 that are mislabeled as Part 61 on this page. Please correct. 3) Pg 4 of 17 – Applicability was not indicated for 40 CFR 60, Subpart O – Sewage Treatment Plants. Please correct. 4) The listing in Form K for 40 CFR 60 goes up to YYY – which this regulation does not appear to exist. What about the remainder of the 40 CFR 60 regs – AAAA-OOOO? 5) 40 CFR 63 – Subpart Y is not included (labeled as Z) and Z is reserved. 7H is not included in list nor addressed. 6) 40 CFR 63, Subpart ZZZZ – please double check the applicability of this rule. Does Resolute have any emergency generators on site? Would the various pumps permitted in the WWTP be subject to this rule?	3/21/14; EM.3/21/14 HC.3/24/14
ID 09	6/9/14	Based on the response to c/p-CU and c/p-CV questions above, should Equipment IDs 2904 and 2905 be removed from the permit? Please be sure to update the TV application accordingly – if removal of other pumps is necessary and size of IDs 2903 and 2902. If these are abandoned in place these can be placed in IA list and indicate such.	6/23/14 EM: 6/23/14 no hard copy
ID 11	6/9/14	Emission Unit ID 11 – "Equipment Leaks & Cleaning Material Usage" and "Miscellaneous Material Usage – These two sources should only be listed in one place, not both. These sources will be deleted from Emission Unit ID 11 since they are accounted for in the Insignificant Activities.	6/23/14 EM: 6/23/14 no hard copy
ID 06	6/9/14	Form C of the TV renewal app shows "Baghouse (2), Filters". Are there filters in addition to the baghouses or does the "Filters" reference back to the baghouse?	6/23/14 EM: 6/23/14 no hard copy
ID 02	6/9/14	Calculations for: 1) Digester Relief Gases – Footnote "A" beside VOC as VOC says the factor comes from NCASI TB 858, Table 9A. There are no VOC factors given on this table. From where did this factor come? The footnotes for VOC as C and VOC as VOC may be reversed. VOC as VOC is calculated using the predominate species; so where did the VOC as C factor come from? 2) Pressure Diffusion Washer – the factor for 1,2-dichloroethylene	6/23/14 EM: 6/23/14 no hard copy

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		should be to the "-5" not "-4" 3) Carbon-to-VOC March 2011 document – knotters and screens show a negative number for ethanol, acetone, respectively. Why? There are others on the sheet with negative "Adjusted Emission Factor". Acetone is not a VOC so understand why that one is excluded. What about the other pollutants? Looks like the only others are Cumene and Ethanol. Cumene and Ethanol are VOCs. 4) Decker – the emission factor for methylene chloride should be 1.1E-4. Please correct.	
ID 05	6/9/14	Construction permit-CY was for the modification of the bleaching process to allow for a higher brightness level. The project description also says that production from the TPM process will increase by 16,250 ADTP/yr for a total 384,900 ADTP/yr. Should the emission calculations for ID 05 be calculated using this higher production rate? The current version (March 21, 2014) uses 1010 ADTP/day. Please correct if necessary or explain why 1010 ADTP/day is the correct production rate for the TMP process. It does not appear this correction has been made in the Emission Inventory sheet with a date of July 2, 2014. Please update accordingly. The production rate has been corrected to 1054.4 ADTP/day	6/23/14 EM: 6/23/14 no hard copy EM: 11/21/14 No hard copy
ID 05	6/10/14	1) VOC as C factor is indicating as coming from February 2001 PSD application. C/ps-CO thru –CT were issued based on this application. The SOB for the project and TMP process says: *"Assmpts: NCASI TB 738: 0.90 lb/ADTP; future system adjust for removing two existing refiners from heat recovery & adding third refiner w/out heat recovery = 0.60 lb/ADTP. Future factor = 1.5 lb/ADTP"* The factor used on the current calculation sheet for VOC as C is 1.67 lb/ODTP. How was that factor derived from the information stated above from the 2001 SOB? TMP Bleaching System 1) The derivation of VOC as VOC could not be found on the carbon-to-voc document. Please add or provide. 2) Please provide the NCASI FPAC Study from which the emission factors for the Bleaching System were obtained.	6/23/14 EM: 6/23/14 no hard copy
c/p-CF	6/17/14	Construction permit –CF issued Sept 28, 1989 was for the construction of a 450 ton CaO/day vertical Lime Regenerator controlled by cyclones and baghouse. Is this part of the equipment listed in Emission Unit ID 07 – Chemical Recovery? If so what is the equipment ID? If not listed in ID 07, should it be? Was the unit installed?	7/3/14 EM: 7/2/14 No hard copy
cp-DC	6/17/14	For IDs 03 and 04: c/p-DC called for the review of the monitored parameters and re-establish them if necessary. What was the result of this review? It appears additional loading was added to the control devices with the addition of the Filtrate Separation System. If updated ranges were submitted, what was the date of the submittal?	7/3/14 EM: 7/2/14 No hard copy

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<table>
<tr><th>ID #</th><th>Date Sent</th><th>Question/Comment

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<tr><td>Control devices</td><td>6/17/14</td><td>In the expired TV and renewal application there are two control devices listed in the control device table:
<table>
<tr><th>Unit ID</th><th>Control Device ID</th><th>Description</th><th>Installation Date/ Modification Date</th></tr>
<tr><td>08</td><td>9820</td><td>Stripper Off Gases (Collection)</td><td>2001</td></tr>
<tr><td>09</td><td>9810</td><td>Condensate Steam Stripper</td><td>2001</td></tr>
</table>
I do not see these included with the noted emission units. Should they be?</td><td>7/3/14
EM: 7/2/14
No hard copy</td></tr>
<tr><td>ID 11</td><td>6/17/14</td><td>Roads – after calculating the lb/yr rates, emission factors were developed based on the paper production. It appears the factors were based on 962,505 ADT/yr (2637 ADT/day). However, those factors are then multiplied by a production rate of 1825 ADT/day to estimate the potential to emit from the roads. Why was this done? It seems that the original lb/yr rates should be used as the PTE and emission factors can be derived using the 1825 ADT/day.</td><td>7/3/14
EM: 7/2/14
No hard copy</td></tr>
<tr><td>ID 09</td><td>6/17/14</td><td>1) The expired TV lists the following as control devices for Waste Treatment, in addition to the two Combination Boilers –
- 800 gal/minute Condensate Steam Stripper
- Stripper Off Gases (SOG) Collection System
But these two sources are also listed as equipment under Waste Treatment. Is this correct? If so please explain. If not, where should these two sources be listed: as controls or as equipment for Waste Treatment?
2) Please provide emission factors and any other information necessary
so emission calculations for the Waste Treatment can be verified.
3) Uncontrolled and Controlled rates are the same, please explain.
4) Please explain the Max. Controlled calculation for VOC as C. It uses Acetaldehyde and Methanol.
5) Pump calculations account for 4 pumps. Depending on responses to ID 05 above, calculations may need to be updated to remove other two pumps.
6) Please double check the factor for CO_2. Some of the GHGs and global warming potentials changed at the beginning of 2014. (Please fix all calcs for GHGs if necessary.)
The latest CO_2 factor was not used in the calculations. Please update.

The current CO_2 factor from 40CFR98, Table C-1 for No. 1 distillate fuel oil (73.25 kg/MMBtu) was used in the CO_2 calculation for the Waste Treatment Pumps. The current GWP from 40CFR98, Table A-1 were used for all CO_2e calculations.
OK – will go with your value. We have normally referred to Diesel as No. 2 fuel oil and that was the factor I had used – as worst case scenario. AP-42, Ch. 3.3 indicates diesel as No. 2 fuel oil (paragraph 3.3.1).

7) Propylene and Total PAH are pollutants that are found in AP-42 Ch. 3 but were not accounted for on the calculation sheet for the pumps in ID09. Please add. Also, several of the individual</td><td>7/3/14
EM: 7/2/14
No hard copy

EM: 11/21/14
No hard copy</td></tr>
</table>

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	4/9/15	PAHs listed in AP-42 Ch. 3 are HAPs but are not accounted for in the HAP total on the calculation sheet. I don't see where propylene was added to the Pumps calc sheet. Please add. Propylene has been added for the pumps. The individual PAH's are also considered Polycyclic Organic Matter (POM), which is the regulated HAP in the CAA. The entry in the inventory for POM has been updated to add the emissions of the compounds identified as PAH. 8) The expired TV has PM emission limits assigned to the pumps. Is this necessary? Why were the limits assigned? I was considering removing the PM limitation. What are your thoughts on this? The PM emission limits were established in the construction permit and carried forward into the Title V permit. FYI - I have removed the PM limits from the pumps. Because the limits are not necessary and Std 4 does not require PM limits on these types of sources. The definition of "Process Weight" excludes liquids and gases used solely as fuels. The PM limits had been based on the fuel usage. The pumps have been removed from the facility and can be deleted from the permit.	4/24/15
ID 06	6/17/14	1) The Air Makeup Units only list natural gas and propane as fuels in the expired TV and the TV renewal application. However, emissions were estimated using Kerosene from these units. Has Kerosene been permitted as a fuel from these sources? What permit number? 2) Paper Machine No. 3 – is the max production rate correct in calculation sheet? If you use the production rate from the equipment description (as appears to have been done w/ Nos. 1 and 2) I get 1,049 ADT Paper /day (382,917 ADT Paper/yr / 365 day/yr)	7/3/14 EM: 7/2/14 No hard copy
ID 06	11/6/14	For Coater Dryer #1: 1) Dichlorobenzene (CAS #25321-22-6), a HAP, is in Table 1.4-3 in AP-42 but was not in your calculation sheet. Please add. AP-42 lists the emission factor for dichlorobenzene, CAS number 25321-22-6. The CAA HAP is 1,4-dichlorobenzene, CAS number 106-46-7, which is included in the spreadsheet. Dichlorobenzene, CAS number 25321-22-6, has been added to the spreadsheet as a non-HAP. 2) VOC as VOC is based on Formaldehyde as being the primary VOC. But there are other VOCs that represent a higher percentage than formaldehyde – butane, pentane. Why would you not use those? Carbon is a much lower fraction of the total weight of formaldehyde due	11/21/14 EM:11/21/14 No hard copy

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		to the oxygen molecule not present in butane or pentane, so the multiplier for formaldehyde is double that of butane or pentane. Paper Machine #3: 1) Should there be condensable emissions from the process emissions? The other two paper machines did not have condensables. This was listed under the process emissions in error, the condensable PM is from the on-machine coating section of the No. 3 paper machine (see response below). 2) A Coater Dryer for the #3 Paper Machine does not appear in the equipment list for ID 06 but there are emission calculations for it. Should the coater dryer #3 be shown as a separate piece of equipment or is it contained in the description for the #3 Paper Machine? The No. 1 and No.2 paper machines have off-machine coaters listed as separate equipment. The No. 3 paper machine has an on-machine coating section of the paper machine. The calculations for fuel combustion in the coating section were performed separately for convenience. Other: 1) Should there be calculation sheets for the Air Flotation Dryer, Infrared Dryer, Hot Oil Heating System, and Booster Oven? The Catawba Mill tracks fuel usage for the No. 3 paper machine "coater", which consists of the air flotation drying section, the infrared drying section, and the hot oil system. The mill does not track fuel usage for each component of the No. 3 paper machine on-machine coater separately. 2) What fuels does the Booster Oven combust? These are not listed in the TV app. The Booster Oven is steam heated.	
C to VOC doc	11/6/14	Carbon-to-VOC March 2011 document – Cumene is negative for the Lime Kiln, please correct. The Lime Kiln carbon-to-VOC conversion has been corrected.	11/21/14 EM:11/21/14 No hard copy
05	11/6/14	TMP Bleaching – Are the VOC as C and VOC as VOC factors reversed on Form D? The carbon-to-VOC document has VOC as C = 1.2E-1 and VOC as VOC = 4.7E-2. The VOC as VOC emission factor from the construction permit application is 1.2E-1 (the sum of the four compounds), which were reverse converted back into VOC as C in the carbon-to-VOC document.	11/21/14 EM:11/21/14 No hard copy
09	11/6/14	1) WTP Emission calc sheet – please explain how the emission	11/21/14

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		factors for TRS were derived. The "Note" column refers to "E" which says the factors come from pg 81 of NCAS TB 849. I do not find these factors on this page. Please see attachment "H_2S emissions" for detailed explanation of the emission factors. 2) 2004 TRI WW calcs document – Please provide an explanation of how the emission factors in this document were derived. A NCASI document is referenced but the exact TB is not given. The 2004 TRI WW calculations were prepared using the 2004 NCASI SARA Handbook. The emission factors in the handbook are derived in the same manner as other NCASI publications.	EM:11/21/14 No hard copy
10	11/6/14	For the Methanol Tank emissions, the emission rate in lb/yr was provided in responses dated March 3, 2014. Please convert these to lb/hr and tpy. No information was provided on the number of turnovers a year, etc. so I cannot do this conversion. (I would think that the lb/hr working losses (emissions from filling the MeOH tank) would be based on the number of turnovers per year and not averaged over the entire year – the tanks is not being filled 8760 hr/yr.) Standing losses = 500 lb/yr Working losses = 3,000 lb/yr Total annual losses = 3,500 lb = 1.75 tons/yr Tank is filled approximately 5 times per month Tank is filled in 1 hr and 15 minutes. 5 fill/month x 1.25 hr/fill x 12 months = 75 hours/yr 3,000 lb/yr ÷ 75 hr/yr = 40 lb/hr working losses 500 lb/yr ÷ 8,760 hr/yr = 0.06 lb/hr Possible hourly emission rate = 40.06 lb/hr	11/21/14 EM:11/21/14 No hard copy
06	12/18/14	For Coater Dryer #1: 1) The calculation for the factor for pyrene divides by 1353 and should only be divided by 135 (heating value of fuel oil/kerosene). The calculation has been corrected. 2) The Natural gas sheet contains emissions for gamma-terpinene and noted as coming from AP-42. I cannot locate this pollutant in the referenced table. Did it come from somewhere else? [This pollutant is also on Coater Dryers #2 and #3 calc sheets and Air Make Up Units NG sheet.] The emission factor for Fluorene was inadvertently copied into gamma-	1/12/15

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		terpinene for natural gas, kerosene, and fuel oil combustion sources. This has been corrected. For Pulp Dryer: 1) The factors for the significant VOC chemicals in the "Carbon-to-VOC" document do not match those used in the calculation sheet. Which factors are correct? From TB 701 which set of factors is the correct one to use – PMMK or PDMN? The emission factors have been harmonized to PDMN. 2) Methanol factor on the Form D does not match that in TB701. Acetaldehyde and Terpenes on C-to-VOC doc do not match Form D or TB701. The emission factors have been harmonized to PDMN. Starch Silos, Equipment ID 9700 – I cannot find emission calculations for these. Please point to where these can be found or provide the emission calculations. Emission Calculations – New Wet End Starch System Starch Silo is only emissions source from process. Emission Calculations – Starch Silo Potential Emissions: Moisture content = unknown Baghouse stack flow rate = 1,150 scfm (from manufacturer) Since moisture content unknown, assume dry standard is equal to standard. Therefore, Baghouse stack flow rate = 1,150 dscfm Inlet grain loading = 10 grains/dscf (from manufacturer) Outlet grain loading = 0.01 grains/dscf (from manufacturer) = 0.02 grains/dscf (used for estimating emissions) Baghouse efficiency = 99.9 % (from manufacturer) Controlled PM Emissions = Outlet Grain Loading x Stack Flow Rate x Conversion factors = 0.02 grains/dscf x 1,150 dscf/min x lb/7,000 grains 60 min/hr = 0.197 lb PM/hr = 0.197 lb/hour x 8,760 hours/year x 1 ton/2,000 lb = 0.863 tons PM/year Uncontrolled PM Emissions = Controlled Emissions/(1-Control Efficiency) = 0.197 lb PM/hr/(1-.999) = 197 lb PM/hr	

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		= 0.863 tons PM/year /(1-.999) = 863 tons PM/year Air Make Up Units Propane calculation sheet – The maximum production is only 48 million BTU/hr whereas the Natural Gas sheet has 126.31 million BTU/hr. Why is there a difference between the two sheets? The production rate for propane has been corrected.	
09	12/18/14	1) The factor and calculation for Nitrogen Oxides for the pumps appears to account for 4 pumps. There are only 2 pumps now. Please correct. Why is the factor "pro-rated"? Please provide the detailed calcs/explanation for pro-rating the emission factor. The NO_X emission factor is prorated because the pumps are different EPA Tiers with different NO_X emission rates. The NO_X emission rate has been adjusted for two pumps as follows: Tier 0 (325 HP) = 0.031 lb/hp-hr and 4.41 lb/MMBtu Tier 1 (345 HP) = 0.015 lb/hr-hr and 2.31 lb/MMBtu [4.41 * (0.015 ÷ 0.031)] NO_X = [(4.41 * 325) + (2.13 * 345)] ÷ (325 + 345) = 3.24 lb/MMBtu 2) The 2004 TRI Wastewater Calculation document shows 0 lb/yr for Chloroform. However, there are emissions estimated for Chloroform on Form D. Which is correct? Chloroform has been corrected to 0 lb/yr as shown in the 2004 TRI. 3) Methylene Chloride – Form D and 2004 TRI document differ. Which is correct? Methylene chloride (dichloromethane) has been corrected from 6 lb/yr to 9 lb/yr as shown in the 2004 TRI.	1/12/15
08	12/18/14	1) TDF – the emission factor for lead, arsenic, cadmium, etc. is said to come from a source test in March 2001. I cannot find a copy of this in our files. Was it a Dept. approved test? Has any tests more recently been done to update the factor? If not, would you consider doing so? A more recent test burning bark and TDF was performed in April 2004. These test results were submitted to EPA during the Boiler MACT ICR. The emission inventory for TDF has been updated using the emission factors on pages 2-1 and 2-2 of the attached report. 2) Lead – on the Form D calculation sheets, the upper portion (criteria pollutants), Lead appears but with a different "Process Variablility Factor" than when Lead appears in the HAP section. Why?	1/12/15

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		"Lead" in the upper portion of the sheet is elemental lead used for comparison to any applicable NSPS and/or air quality emission limits and standards. "Lead compounds" is the HAP definition and the process variability factor adjusts the compound to the most common oxidation state for TRI reporting (Form R). 3) Combo Boiler #1: a) gamma-Terpinene is shown as an emission from natural gas combustion on Form D. However, it is not listed in the referenced citation (AP-42). Does this factor come from somewhere else? Please correct. The emission factor for Fluorene was inadvertently copied into gamma-terpinene for natural gas, kerosene, and fuel oil combustion sources. This has been corrected. b) The TDF emissions factor for 1,1,1-Trichloroethane should be 1.03E-6 instead of 1.3E-6. Please correct. The emission factor has been corrected. c) Nitric Oxide – is your emission factor correct? The reference says it is from AP-42, Table 1.3-8. I get 0.53 lb/1000 gal as the factor from this reference. This error has been corrected. The AP-42 emission factor is for nitrous oxide (N_2O). The emission factor for nitric oxide (NO) does not exist and has been deleted for No. 6 oil. d) Polychlorinated dibenzo-p-dioxins – the reference should be "E" and not "D". PCDD references for No. 6 oil combustion have been corrected. e) "CB1 – Summary" – The cell for "Total 112(b) Hazardous Air Pollutants" uses the "Max" formula to obtain the maximums from the Wood, Oil, or Gas calculation pages. Would a better representation of the worst case Total HAPs be to use total of the column instead of using the "Max" formula? If the maximum HAP emissions from each fuel were summed, the corresponding maximum boiler heat input would be 1,189 MMBtu/hr. [These comments for ID 08 can also apply to the Combo Boiler #2 and the Power Boiler #1, as applicable.] The corrections shown above were applied throughout the inventory as applicable.	
07	12/18/14	1) Alt Form D and F calc sheets - Several sources (at least the recovery furnaces and smelt dissolving tanks) have an emission	1/12/15

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		factor reference of "NCASI 2012 Pulp and Paper Criteria Pollutant Database". We are not allowing the use of this database for obtaining emission factors because we need emission factors from published sources in which the values have been properly edited and vetted. From what I understand, the database is an Excel file that may or may not have typos, and the complete explanations as to how the factors were derived are not included. Please update the emission factors that came from this source by use of other acceptable emission factor sources accordingly, ie. published data. References to the NCASI 2012 Database have been updated to NCASI Technical Bulletin 1020 (December 2013). 2) Recovery Furnace #2 – a. Filterable PM factor comes from AP-42 Table 1.3-4. The factor used is for 15 micron particle size. Should the factor for "Total" have been used instead (8.3 vs. 6.7)? If not, please explain your choice. Why would you not use the filterable factor from Table 1.3-1? [8.3 was used in the calculations for the Combo Boilers and Power Boiler.] The recovery furnace PM/PM_{10}/$PM_{2.5}$ emission factors are for ESP controlled emissions from Table 1.3-4 because the ESP is normally energized when operating. The combination boilers have been switched to the recovery furnace calculation approach of using the controlled emission factors because Boiler MACT will require operating the ESP while burning oil. The power boiler does not have a control device and those calculations remain unchanged using the uncontrolled emission factor in Table 1.3-4. b. The Uncontrolled Filterable PM_{10} and $PM_{2.5}$ factors are the ESP Controlled from AP-42 Table 1.3-4. Shouldn't the uncontrolled values be used from Table 1.3-4 for uncontrolled emissions? Your approach on these two pollutants was different from that used for PM – stared with controlled rates and back-calculated to uncontrolled. Should there be consistency between all three? The PM, PM_{10}, and $PM_{2.5}$ emission from oil combustion in the recovery furnaces and combination boilers are calculated using the controlled emission factors and back-calculating the uncontrolled emissions because the exact control efficiency is unknown and the controlled emissions are regulated. The uncontrolled emissions are an informational estimate provided to complete the application forms. c. Polychlorinated dibenzo-p-dioxins – the reference should be "I" and not "H". PCDD references for No. 6 oil combustion have been corrected.	

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		d. Please check your factor for Nitric Oxide. I get 0.53 lb/1000 gal from AP.42, Table 1.3-8. This error has been corrected. The AP-42 emission factor is for nitrous oxide (N_2O). The emission factor for nitric oxide (NO) does not exist and has been deleted for No. 6 oil. 3) Recovery Furnace #3 – a. NOx emission factor for Natural Gas – should the Post NSPS factor from AP-42 Table 1.4-1 be used instead of the Pre-NSPS factor? See also footnote 'c' for this table. The No. 3 recovery furnace is not subject to the NSPS NO_X emission limit for boilers so the pre-NSPS emission factor was selected. b. gamma-Terpinene is shown as an emission from natural gas combustion on Form D. However, it is not listed in the referenced citation (AP-42). Does this factor come from somewhere else? Please correct. The emission factor for Fluorene was inadvertently copied into gamma-terpinene for natural gas, kerosene, and fuel oil combustion sources. This has been corrected. 4) Precipitator Mix Tanks sheet – a. References – there are 2 "C" references. D is missing. Where did this factor come from that references "D"? The emission factors for salt cake mix tanks have been changed to average emission factors to one decimal scientific notation as shown in TB 677, Table X.A.1. The "c" reference is now reserved. b. VOC as C – the footnote says that the highest was used from Mill L or N. The highest from TB 677 is 7.6E-3 lb/ T BLS, which is not the factor used in the calc sheet. Please correct. The emission factors for salt cake mix tanks have been changed to average emission factors to one decimal scientific notation as shown in TB 677, Table X.A.1. c. The factors in TB 677 show only one decimal place in scientific notation. The factors you used show two decimal places in scientific notation. Where did you get the extra number? The emission factors for salt cake mix tanks have been changed to average emission factors to one decimal scientific notation as shown in TB 677, Table X.A.1.	

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		5) Green Liquor Storage Tanks a. Where did the VOC as C factor come from? I do not see this pollutant in the referenced TB 858. TB 858 does not list the VOC as C emission factor, this was calculated in the VOC-to-Carbon worksheet by adjusting the factors for each compound using the carbon weight percent.	
07	02/20/15	1) SDT#2 and SDT#3 - a. There is a factor and calculation for sulfuric acid mist referencing TB 858, Table 17A. I could not find this pollutant there. Where did it come from? No published emission factor for sulfuric acid could be found, therefore it has been removed. 2) Green Liquor Clarifiers – there are 3 listed as part of Equipment ID 2700. Should the emission rates be multiplied by 3? Each clarifier processes approximately one-third of the total production. 3) Equipment ID 2700 lists 3 Green Liquor Storage Tanks. Should the emission calculations be multiplied by 3 instead of 2 as seen in the Alt. Form D and F? Form D and F have been corrected to reflect 3 green liquor storage tanks. 4) Precipitator Mix Tanks – emission factor for 1,2-dichloroethylene should be 1.4E-6. The emission factor has been corrected.	03/06/15 EM:3/6/15 No hard copy
Carbon – to – voc document	02/20/15	1) There are conversions for Dregs Filter, Dregs Filter vacuum pump and White Liquor Clarifier. Should there be calculation sheets for these in the Alt. Form D and F spreadsheet? These source are labeled incorrectly in the carbon-to-voc spreadsheet. The labels have been corrected to green liquor clarifier (dregs filter), green liquor surge tank (dregs filter vacuum pump), and white liquor pressure filter (white liquor clarifier). 2) Likewise, there are no conversions present for Green Liquor Clarifier, Green Liquor Surge Tank, and White Liquor Pressure Filter but there are calculation sheets for each in the Alt. Form D and F spreadsheet. Should there be conversion sheets? The sources are correct in the emission inventory spreadsheet. The carbon-to-voc spreadsheet has been corrected.	03/06/15 EM:3/6/15 No hard copy
Alt. Form	02/20/15	1) There is a tab for "HD Pulp Storage Tanks". It indicates an ID 12	03/06/15

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D and F		which there is not an Emission Unit 12. To what emission unit do these emissions belong? The HD tanks do not belong to any existing Title V emission unit. The HD tanks are for storing pulp between the kraft mill bleaching system and TMP and the paper mill, so a new emission unit 12 was created. 2) On summary sheets, such as RF2 Summary – you choose the MAX between the various calculations for PM, PM_{10}, SO_2, etc. In the case of the Recovery Furnaces, can't those units burn more than one fuel at a time? Should you add the highest fuel (NG or Fuel Oil) to that of Black Liquor Solids for the worst case PTE? Fossil fuels are generally burned during startup and shutdown. There may be a period of time when a small amount of black liquor is burned with fossil fuel, or a small amount of fossil fuel is burned with black liquor, however both fuels cannot be burned at maximum heat input because the excessive heat will damage the interior sections of the recovery furnace.	EM:3/6/15 No hard copy
09	02/20/15	1) There is no conversion given in the carbon-to-voc document for the WWTP. Should there be? Or how do you convert from VOC as C to as VOC then? No conversion was calculated for the WWTP in the carbon-to-voc document. The ratio for methanol and acetaldehyde was applied in the WWTP tab of the emissions spreadsheet. 2) NOx for the pumps – looks like the calculation still accounts for 4 pumps. Cell I25 has "10.08+5.18+6+6". Where do these values come from? Does not appear to be from using the NOx pro-rated emission factor. The NOX emission factor was changed, however the cells calculating the NOX emissions were not updated. The values in the cells were from the construction permit applications. The calculation has been corrected.	03/06/15 EM:3/6/15 No hard copy
06	02/20/15	1) Starch Silos – The emission estimates above, are those for each of the four silos? Or since there are two baghouses, are the emissions from each baghouse? The emissions are from each baghouse. 2) Pulp Dryer – on the C-to-VOC document, the equation for each pollutant in the percent total column uses the total voc from above and not that for the pulp dryer (ie. cell F65). Please correct. The calculation sheet will also need to be corrected for VOC factor. The C-to-VOC equation and emission inventory spreadsheet have been updated with the correction.	03/06/15 EM:3/6/15 No hard copy
08	02/20/15	Combination Boilers 1 and 2 - The emission factors used for PM, PM_{10}, and $PM_{2.5}$ have changed since the modifications to the combination	03/06/15 EM:3/6/15

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		boilers project in 2014 (exemption 05x). Please explain. We ask that emission factors used remain consistent for sources between projects. The lead factor for TDF is also different from the 2014 project. The emission factors for PM, PM_{10}, $PM_{2.5}$ and lead were not updated for the 2014 project (exemption 05x). The emission factors have been updated to reflect the 2014 exemption.	No hard copy
05	2/25/15 4/9/15	Condition 05.2 of the expired TV lists an annual production limit of 456,300 ADTP/year. However, based on the throughput of 1054.5 ADT/day that equals 384,892.5 ADTP/year. Where does the 456,300 limit come from; should the production throughput be based on that (1250 ADTP/day)? Construction permit –CY, the last to be issued dealing with the TMP Process, lists the limit as 368,900. Construction permit CY reflects the current production based on the six-line configuration to support production of coated paper on the no. 3 coated paper machine. The expired Title V shows the production based on the seven-line TMP configuration to support newsprint production on the no. 3 paper machine prior to the conversion to coated paper. Ok, so the correct limit for TMP should be 368,900 ADTP/yr since it can only handle the coated paper and does not process newsprint, correct? The current permitted TMP production of 368,900 ADTP/yr is based on the current six line configuration. The TMP pulp can be used to manufacture any product or grade. November 2015 Update: Construction Permit CY, Condition CY10 increased the TMP production rate to 384,900 ADTP/day (equivalent to 1054.5 ADTP/day). This production rate represents the current six-line configuration. The original production rate following the conversion to six lines was 368,650 ADTP/day in Construction Permit CT, Condition 7.	03/06/15 EM:3/6/15 No hard copy 4/24/15
02	2/25/15	Condition 02.2 of the expired TV says that the caustic scrubber (ID CD-5260C) controls TRS and SO_2 emissions from the digester. However, this control device ID is not listed as part of the control devices for the Continuous Digester System. Should it be listed there? Condition 2.2 is not correct. The LVHC scrubber (5260C) controls the TRS and SO2 from the turpentine system (5220) as shown in Table 5.5.	03/06/15 EM:3/6/15 No hard copy
07	2/25/15	Please address the modifications that have been made to No. 3 Recovery Furnace and the applicability of 40 CFR 60, Subpart Db. Were these modifications significant enough to be considered reconstruction or a modification, as defined in 40 CFR 60 Subpart A, and thereby making No. 3 Recovery Furnace subject to Subpart Db? What about 40 CFR 60, Subpart D, should the Recovery Furnace have been subject to it? The modifications to the No. 3 Recovery Furnace did not increase the fossil fuel firing capacity, therefore the modifications did not result in an increase in emissions subject to Subpart Db. EPA applicability determination NB01 clarified that Subpart D does not apply to recovery	03/06/15 EM:3/6/15 No hard copy

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	4/9/15	furnaces. According to NB01, the No. 3 Recovery Furnace would need a 10% annual capacity factor limit on burning fossil fuels to not be subject to Subpart D, or as an extension Subpart Db. I do not see a limit of this kind in the TV permit. Is the No. 3 Recovery Furnace subject to Subpart D? I think you need to have either the 10% annual capacity limit or Subpart Db limits in your permit. Agreed, include the 10% annual capacity factor in the permit.	4/24/15
03	4/9/15	Do the operational ranges need to be re-established based on installation of the filtrate separator system? The filtrate separator system does not impact the performance of the ClO2 generator scrubber or the tail-gas scrubber so the operational ranges do not need to be re-established.	4/24/15
MACT ZZZZ	4/9/15	Do you have any sources subject to 40 CFR 63, Supbart ZZZZ, aka. The RICE MACT? If so please provide the Equipment IDs and equipment description. Sources 2902-2905 (diesel driven pumps) have been removed from the facility. There are currently no sources subject to the RICE MACT.	4/24/15
07	4/9/15	Should the LVHC Caustic Scrubber appear as a control device for the No.2 and No. 3 Evaporator Sets? Currently the scrubber is only shown for No. 1 Evaporator Set. Why or why not? The LVHC caustic scrubber controls all three evaporator sets.	4/24/15
08	4/9/15	1) Please provide a brief statement as to why the boilers are not subject to acid rain regulations. The boilers do not generate electricity for sale to the grid, therefore the acid rain provisions do not apply.	4/24/15
06	4/9/15	1) Std 1 vs. Std 4: On page 3 of 64, Form I of the TV application, Equipment IDs: 2010, 4610, 4120, 4130, and 9900 are shown being subject to both Std 1 and Std 4 (but for different pollutants). However, sources that burn fuel are subject to only one or the other. The difference is if the source is direct or indirect heating. Std 1 – Fuel Burning operations is defined as burning fuel for purpose of indirect heating; Std 4 is for direct heating sources – where the products of combustion come into contact with the materials being heated. Please identify all of the sources that burn fuel in ID 06 if they are direct or indirect. 2010 – direct 4610 – direct 4120 – indirect 4130 – indirect 9900 – indirect ??? these are air makeup units for space heating	4/24/15

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		2) FYI - The Booster Oven is now listed under the Pulp Dryer, instead of as a separate source, since it does not have any emissions on its own. Change accepted.	
02, MACT S	4/9/15 6/02/15	Should "Decker" be added to the list of equipment part of ID 5250? The kraft fiberline does not have a "decker". The "screen room washer" serves the same function as a decker. But you've estimated emissions from a device called a "decker" in the emission calculations. Can you explain the difference between decker and what is used at Resolute (screen room washer)? I've read the definition of decker in 40 CFR 63 Subpart S. I do not know how the screen room washer operates and its purpose. I would like to understand with respect to Subpart S, as it mentions "decker systems" and I need to know if it should be included in the TV renewal or not. The equipment list for ID 02, 5250 – Knotting and Screening contains the "screen room washer". And if you have a "new Decker" according to Subpart S, emissions from it have to be controlled. The screen room washer is the final piece of pulp conditioning equipment prior to high density storage. The screen room washer and associated filtrate tank serve the same functional purpose as a decker system defined in Subpart S, and both the washer and the filtrate tank are vented into the HVLC collection system. The air emission inventory has been updated to refer to the screen room washer rather than calling it a decker.	4/24/15 6/18/15 Rec'd 6/30/15
08, 09	4/9/15	1) What is the difference between the condensate tanks listed as part of Equipment ID 5261, 5271 in ID 08 and the one in ID 09, Equipment ID 9800? 5261 and 5271 are the condensate tanks on the LVHC and HVLC systems. The collected condensate from the two NCG systems is then directed to 9800. 9800 is the foul condensate collection tank prior to the steam stripper.	4/24/15
08	4/9/15 6/02/15	Is there an error in the Filterable and Total PM, PM_{10}, $PM_{2.5}$ emission calculations? The uncontrolled results are extremely high. This is for both combination boilers and for both wood and oil. The uncontrolled emissions required by the Department are theoretical estimates back-calculated using the control efficiency. Since the boilers must utilize controls to achieve the applicable PM emission limits, the uncontrolled emissions are not really meaningful. On the Oil pages for CB1 and CB2: The result you have in cell AU12 is the uncontrolled emission factor. That value is used in the controlled factor calculations, see cell AF12. AU12 should be calculating the value for "A" (from AP-42, Table 1.3-4, A= 1.12*S+0.37) which would then be	4/24/15 6/18/15

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		used to calculate the controlled emission factor in AF12. Please take a look and make corrections. The emission factors have been changed to reflect emissions controlled using an ESP, as indicated in the reference. The control efficiency has been updated based on the ratio of controlled and uncontrolled emission factors.	Rec'd 6/30/15
Insign. Activities	4/9/15	1) Strong Black Liquor tanks – a) An incorrect emission factor may have been used for 1,2-dichloroethylene. From TB 858, Table 10B, I get 1.9E-6 lb/hr/tank The emission factor has been corrected. b) an incorrect emission factor may have been used for n-Hexane. I get E-5, not E-4. The emission factor has been corrected. c) Acetone emissions were not calculated. The emission factor has been added. 2) Low Density Pulp Tanks – a) Total Hydrocarbon factor - why was the minimum of the range used instead of the "median"? The "carbon-to-VOC" document says it comes from TB 701 instead of TB 858 like the rest of factors for these tanks. Why? The emission factors in TB 701 and TB 858 represent unbleached HD tanks. The minimum of the range is the most representative for a bleached HD tank at the Catawba mill because the pulp is washed four additional times in the bleach plant prior to the HD storage tanks. The references have been changed to TB 858. b) Why was the process variability factor not used when calculating Dimethyl Disulfide, Dimethyl Sulfide, and Methyl Mercaptan? The process variability factor has been corrected. c) The methyl mercaptan factor should be E-3, not E-2. The emission factor has been corrected. 3) Gasoline tanks and Oil tanks - a) The VOC calculations multiply 24 hr/day x 7 days/wk x 365 days/yr – the units do not work out. Should drop the 7 days/wk for both VOC as C and as VOC. The calculations have been corrected.	4/24/15

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c/p-CZ	6/02/15 10/30/15	I do not see the tanks mentioned in this construction permit in the TV permit. Can you point me to the location? It looks like they should be in the Insignificant Activities attachment – the "new" 470,000 gal #6 White Liquor Storage Tank and the (M27-37) #2 White Liquor Storage tank that was converted to a "swing" tank. Should M27-033 and M27-004 be shown as retired in place? The two tanks in construction permit CZ should have been added to emission unit 07, equipment ID 2700. The #6 white liquor storage tank could be added to the insignificant list. The swing tank is not insignificant when used to store green liquor. M27-033 and M27-004 are both retired in place.	6/18/15 Rec'd 6/30/15 Due 11/13
c/p-CS	10/30/15	This construction permit converted the #3 Paper Coater in ID 06 from Newsprint to light weight coated paper. Production was allowed to increase up to 366,667 ADTFP/yr. However, the expired TV lists a production rate of 382,917 ADT Paper/yr. None of the permits issued after c/p-CS have anything to do with #3 Paper Coater. What is the correct production of the No. 3 coater? If it is 382,917 – what allowed it to increase to this level? I apologize if it seems that we are going round and round with this rate, but I seem to keep seeing different rates and I would like to know what is the correct rate and how/why did it become the correct rate. Construction Permit CY increased the #3 Coated Paper production rate to 382,917 ADTP/day. The original production rate following the conversion to coated paper was 366,667 ADTP/day in Construction Permit CS. Please note the 4/24/2015 response to the TMP production rate inquiry has also been updated to correctly reflect the TMP production rate in CP-CY of 384,900 ADTP/yr.	11/13/15
ID 08	10/30/15	The original TV permit and the most recent expired TV permit indicate the maximum sulfur content of the No. 6 fuel oil used in the Power Boiler is 2.5%. The renewal application also indicates this. However, the emission calculation say the maximum sulfur content is 2.1%. Which is correct? When did it change from 2.5% to 2.1%? If the correct maximum sulfur content is 2.5%, then the Power Boiler would not be in compliance with the new sulfur limit from Std 1. The correct sulfur content for No. 6 fuel oil is a maximum of 2.1%. There is no clear permitting record regarding when the sulfur content was reduced. The Catawba Mill may have limited the sulfur content of No. 6 fuel oil to a maximum of 2.1% in 1980 when it began burning TRS gases in the combination boilers.	11/13/15